

D/68 FILE C4

LOCKHEED AIRCRAFT CORPORATION	ENGINEERING STUDY <input type="checkbox"/>	CHANGE PROPOSAL <input checked="" type="checkbox"/>	LAC-176

DATE 25 March 1964	AFFECTS: WSPO <input type="checkbox"/>	PROJECT <input checked="" type="checkbox"/>
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NAME OF MAJOR COMPONENT	PART OR LOWEST SUBASSEMBLY	PART NO. & MODEL C.R.TYP
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TITLE OF PROPOSAL :
INSTALL A HYPOXIA WARNING SYSTEM

NATURE OF PROPOSAL :

See Page 2 & 3

REASON FOR PROPOSAL :

ES	ESTIMATED COST AND TIME INVOLVED :		
	ADDITIONAL FUNDING REQUIRED :		
CP	ESTIMATED COST FOR KITS OR PARTS : See Pages	STAT	
	ADDITIONAL FUNDING REQUIRED : Yes (SP-1923)		

ITEMS AFFECTED BY PROPOSAL :

SAFETY <input type="checkbox"/>	MISSION EFFECTIVENESS <input checked="" type="checkbox"/>	PERFORMANCE <input type="checkbox"/>	OPERATING PROCEDURE <input type="checkbox"/>	INTER-CHANGEABILITY <input type="checkbox"/>	WEIGHT OR WEIGHT & BALANCE <input checked="" type="checkbox"/>	TOOLS & SUPPORT EQUIPMENT <input checked="" type="checkbox"/>	MAINTENANCE PROCEDURE <input checked="" type="checkbox"/>	SERVICE LIFE <input type="checkbox"/>	FLIGHT MANUAL <input checked="" type="checkbox"/>	MAINTENANCE MANUAL <input checked="" type="checkbox"/>
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EST. MAN/HRS. REQ'D. TO ACCOMPLISH CHANGE IN FIELD 40

SOURCE OF PARTS FOR KIT LAC & GPE	AVAILABILITY <u>4</u> WEEKS AFTER APPROVAL See Page 4 Test phases only
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DISPOSITION OF SPARES AFFECTED MA-2 HELMETS TO BE RETURNED TO FACTORY FOR REWORK	See Approval
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INITIATED BY : <u>SP-1A</u>	APPROVED : <u>XX</u>
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PURPOSE:

To warn the pilot of impending hypoxia and to signal the ground monitoring station via [redacted] 618T-3 or 2 conditions:

- a. Impending pilot hypoxia.
- b. Pilot breathing has stopped for more than 1 minute.

NATURE OF PROPOSAL:

1. Modify the aircraft and the MA-2 high altitude helmets by installing a hypoxia Warning System, manufactured by the Beckman Instrument Corporation. The major components of the system will be identical to those currently being supplied under Contract No. [redacted] for use by the Air Defense Command in F106 and F101 aircraft. This system has been undergoing operational development as well as static and flight tests by the United States Air Force for the past 2 years. Recent tests conducted during the month of December 1963 in F106 and F101 aircraft provided additional substantiation that the system is flight qualified. Major William Lee, Box 8072, Aeronautical System Division, Wright Patterson Air Force Base, Dayton Ohio, Phone: Clearwater 3-7111, Extension 33181, has been in charge of all development and tests.
2. Concurrent with processing of this proposal the Contractor is negotiating with Beckman Instruments to obtain one system on consignment for installation and operational evaluation in one of the Project aircraft.
3. The Amplifier-Indicator will provide two types of signals:

[redacted]

4. The aircraft will be modified as follows:
 - a. Add a red HYPOXIA WARN light to the instrument panel or above the panel.
 - b. Install the hypoxia Indicator/Amplifier in the R. H. Console.
 - c. Revise the aircraft wiring and add 2 circuit breakers on the left side panel. Existing pilot and seat disconnects and harnesses for faceheat and interphone circuits will be replaced with harnesses and disconnects to include the additional 4 HYPOXIA warning circuits.
 - d. Install the GFE adapter box for monitoring pilot breathing.

NATURE OF INFORMATION: Release 2002/08/21 : CIA-RDP89B00980R000200170049-2

5. All MA-2 Helmets will be modified as follows:
 - a. Replace the existing 4 circuit interphone harness with an eight circuit harness to accommodate the existing interphone requirements and the hypoxia sensor. The new cable will terminate with two separate pull-apart disconnects to mate with the interphone and hypoxia warning harnesses.
 - b. Install the hypoxia sensor receptacle and the sensor adjacent to the microphone.
6. In addition to the prototype installation and testing which will be accomplished in conjunction with other flight tests, the Contractor anticipates a total of 1 test flight to check the production installation of the hypoxia system and the operation of the GFE adapter box for monitoring pilot breathing.
7. After tests are complete the Contractor will issue two service kits: one to modify the 7 aircraft and the other to modify the MA-2 helmets. (Quantity of 35 helmets - EAFB 20, H 8, WRAMA 3, and LAC 4).
8. The installation will not weigh more than 5 pounds and moves the C.G. less than 0.1 inch forward.

TEST EQUIPMENT

A special HYPOXIA TEST UNIT consists of a TEST AMPLIFIER UNIT and a SENSOR SIMULATOR.

The special TEST AMPLIFIER UNIT is recommended to preflight O₂ sensor checkout and, if desired, for monitoring the pilot's oxygen supply during preparations for flight. Used in conjunction with a SENSOR SIMULATOR, the TEST AMPLIFIER UNIT would also be used for calibration of the aircraft's Hypoxia Warning Amplifier to match the particular sensor installed in the pilot's helmet during the preflight.

COST BREAKDOWN:

- I. Fabrication & Assembly of Kit Parts (SP-1900)

II.

26X1

STAT

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